CLAIMS

1. Line driver for amplifying an input signal, said line driver comprising :

- a non-linear amplifier (3) arranged to provide a first output signal amplifying said input signal
- an analogue linear amplifier (5) providing a second output signal based on the difference between the input signal and the first output signal, placed in parallel with said non-linear amplifier and being dependent thereon, and
- combining means arranged to combine said first output signal and said second output signal to provide a total output signal to an output line (7).

2. Line driver for amplifying an input signal, said line driver comprising:

- a first input terminal (11) for receiving said input signal,
- a non-linear amplifier (3) connected to said input terminal (11) and arranged to provide a first output signal at a first output terminal (13),
- an analogue linear amplifier (5) comprising a second (6) and a third input terminal (8) and a second output terminal (10), set up as a comparator between said input signal and said first output signal and arranged to provide a second output signal at said second output terminal (10), and
- combining means arranged to combine said first output signal and said second output signal to provide a total output signal to an output line (7).

3. Line driver as in claim 1 or 2, characterised in that the proportion of the first output signal in the total output signal is at least 95%.

4. Line driver as in any of the claims 1 to 3, characterised in that the line driver comprises a digital to analogue converter (15) arranged to convert the input signal to an analogue input signal and that said analogue input signal is fed to the second input terminal (6) of the linear amplifier (5).

5. Line driver as in any of the claims 1 to 4, characterised in that the linear amplifier (5) is selected from the group consisting of class A and class A/B amplifiers.

6. Line driver as in any of the claims 1 to 5, characterised in that the non-linear amplifier (3) is selected from the group consisting of switching mode amplifiers, clipping amplifiers, class B, G or K amplifiers and pulse width modulation amplifiers.

7. Line driver as in any of the claims 1 to 6, characterised in that the combining means comprise a hybrid (9).

8. Line driver as in any of the claims 1 to 7, characterised in that the input signal is generated by a DMT (2).

9. Line driver as in any of the claims 1 to 8, characterised in that it further comprises an active back termination circuit.

10. An analogue-digital combined amplifier comprising:

- a non-linear digital amplifier (3) serving as an independent current source
- an analogue linear amplifier (5) serving as a voltage source dependent on said non-linear digital amplifier,

wherein the output of said analogue-digital combined amplifier is a combination of the output of said

non-linear digital amplifier and said analogue linear amplifier.

11. Analogue-digital combined amplifier as in claim 10, characterised in that the linear amplifier (5) is selected from the group consisting of class A and class A/B amplifiers.

12. Analogue-digital combined amplifier as in claim 10 or 11, characterised in that the non-linear amplifier (3) is selected from the group consisting of switching mode amplifiers, clipping amplifiers, class B, G or K amplifiers and pulse width modulation amplifiers.

13. A method for amplifying an input signal, comprising the following steps:

- providing a line driver (1) such as in claim 1 or 2,
- feeding said line driver (1) at the input terminal (11) with said input signal,
- a first amplifying step, comprising amplifying said input signal with the non-linear amplifier (3) and providing the first output signal at the first output terminal (13),
- a second amplifying step, performed in parallel with said first amplifying step and comprising a digital to analogue conversion of the input signal to an analogue input signal, and comparing said analogue input signal with said first output signal using an analogue linear amplifier (5), providing a second output signal at the second output terminal (10), and
- a combination step comprising combining said first output signal with said second output signal to obtain a total output signal to an output line (7).

14. The method as in claim 13, characterised in that said combination step is performed using a hybrid (9).

15. The method as in claim 13 or 14, characterised in that the input signal is generated by a DMT (2).